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REMARKS

Applicant gratefully acknowledges allowance of claims 26 and 27 as indicated on Page 3 of the Examiner's Office Action dated October 29, 2003. Applicant also appreciates indication of allowance of claims 3, 4, 6, 8, 9, 11-16, 18-20, 22, and 24 if amended to be in independent form including all of the limitations of the base claim and any intervening claims. Applicant has according amended claim 3, 18, and 24, which places claims 3, 4, 6, 8, 9, 11 – 16, 18 – 20, 22, and 24 in form for allowance.

35 U.S.C § 112, Second Paragraph Rejections

Claims 2, 5, 7, 10, 17, 21, and 25 were rejected as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention under the provisions of 35 U.S.C. § 112, second paragraph.

Response to 35 U.S.C § 112, Second Paragraph Rejections

Claim 2 has been amended to clarify the range in which water is specified in the chemical change agent to indicate an upper range for the water.

With respect to claim 5, based upon Applicant's understanding of the industry standard terminology, the ester moiety of the glycerides contains 16 to 18 carbon atoms. Example data sheets have been included for three fatty acids, which are also known as glycerides (see paragraph [0016] on page 5 of the present invention), that can be used in the present invention demonstrating the industry standard terminology and to clarify the number of carbon atoms that are present in the free fatty acids useful in the present invention.

Claim 7 has been amended to clarify that the reference to "soy oil" is another term for "soy bean oil." Claim 10 has been amended to clarify the required ranges for water and tall oil to indicate an upper limit for these two components. Claim 17 has been amended to change "The method" to "A method". Claim 21 has been amended to provide proper antecedent basis for the mixer. Claim 25 has been amended to clarify that coal is not present in two proportions, but rather a range of proportions. Proper antecedent basis for the chemical change agent has also been provided.

Applicant respectfully submits that all of the claims that were rejected as allegedly being indefinite have been amended or explained to remove the basis for the rejections based upon the provisions of 35 U.S.C. § 112, second paragraph.

35 U.S.C. § 103(a) Rejection

Claims 1, 2, 17, and 23 were rejected as allegedly being unpatentable under the provisions of 35 U.S.C. § 103(a) over U.S. Patent No. 4,696,638 issued to DenHerder (hereinafter "DenHerder").

Response to 35 U.S.C § 103(a) Rejection

Applicant respectfully submits that the present invention is patentably distinct from the composition described in DenHerder. One difference between the composition described in DenHerder and the present invention is that the DenHerder composition is a "water-in-oil" emulsion, while the present invention is an "oil-in-water" emulsion, as described in paragraph [0019] on page 5 of the present application. In a water-in-oil emulsion, water is in the discrete or droplet phase of the emulsion, while oil is in the continuous, external, or liquid phase. Water contained in the DenHerder emulsion is in the discrete phase of the emulsion in the form of "a fine dispersion of tiny droplets having a diameter within the range from approximately 1 to approximately 10 microns, preferably from approximately 1 to approximately 5 microns, and most preferably from approximately 2 to approximately 4 microns" (see claims 1, 13, 15, 16, 17, 20 and 22 of the DenHerder patent). In an oil-in-water emulsion, water is in the liquid or continuous, external phase and oil is in the discrete or droplet phase of the emulsion. In the present invention, the droplets of oil are in the discrete phase and are preferably in a range of about 5 to 10 microns range as described in paragraphs [0018] and [0019] on page 5 of the present invention.

As another distinction, the present invention is used with solid fuels and DenHerder is not. DenHerder specifically teaches the use of the "water-in-oil" emulsion as an additive for "oil fuels" with the purpose of combustion improvement. DenHerder defines oil fuels in claims 2, 3, 4, 5, and 6 where the oil fuel can consist of hydrocarbon oil fuel, vegetable oil fuel, plant oil fuel and oil-coal slurry. The Examiner indicated in paragraph 3 of the Office Action that oil-coal

slurries could be used in the composition. Applicant respectfully submits that the oil-coal described in col. 1, lines 5 – 13, is not a component of the emulsion composition, but rather the oil fuel in which the water-in-oil emulsion is introduced by metering. The coal that is used to form the synthetic fuel of the present invention is in the solid phase, not in a slurry. Claim 23 has been amended to further emphasize that the synthetic fuel of the present invention is a solid phase fuel and not a liquid or slurry, as is the case in DenHerder.

DenHerder teaches that the water-in-oil emulsion specifically improves "combustion of oil fuels in the combustion zone" in claims 1 and 22. In the DenHerder summary of the invention, the improved combustion is accomplished by introducing small emulsified water droplets into the oil combustion zone. The mechanism of this combustion improvement is presented in col. 3, lines 47-55 of the DenHerder patent: "...water assists in the combustion of oil fuels by exploding as it converts to vapor at the high temperatures present in the combustion zone. This in turn causes the oil drops to burst into smaller particles which burn more efficiently." The size of the water droplets is believed to enhance the effectiveness of this mechanism. This teaches away from the present invention in that Applicant's oil-in-water emulsion formulation is for specific use on solid fuels, not liquids. The water in the present invention is not in the form of droplets, thereby not engineered for oil combustion improvement. The present invention is used only on solid fuels; in this case, the solid fuels are bituminous coal and coke.

As yet another distinction, in the present invention, Applicant does not claim or describe improved combustion performance of the solid fuel. By the time the solid fuel is in the combustion zone, the applied chemical change agent of the present invention is no longer in the emulsified state but exists as an integral part of the coal particle. The emulsion of the present invention is designed to impart chemical change on a solid fuel as defined in paragraph [0028] of Applicant's patent application.

Applicant has amended claims 1, 17, and 23 to clarify that the water is the carrier fluid in the emulsion, or liquid phase, and the oil and surfactant are in the solid phase of the emulsion. In DenHerder, the oil is the liquid phase and the water is in the solid phase of the emulsion described therein. Applicant respectfully submits that the present invention is patentably distinct

from the emulsion described in DenHerder, which should remove the basis for the 103(a) rejection.

CONCLUSION

The current claims contain elements not found in the prior art, making the presently claimed invention patentably distinguishable from the disclosure of the cited references. For example, the present invention is an oil-in-water emulsion that is used to create solid synthetic fuels by adding the chemical change agent emulsion to solid coal. DenHerder describes the formation of a water-in-oil emulsion that is metered to be blended with an oil fuel to improve combustion efficiency.

In commenting upon the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between the references and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions to create any implied limitations in the claims. Not all of the distinctions between the prior art and Applicant's present invention have been made by Applicant. For the foregoing reasons, Applicant reserves the right to submit additional evidence showing the distinctions between Applicant's invention to be unobvious in view of the prior art.

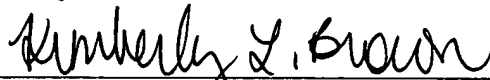
The foregoing remarks are intended to assist the Examiner in re-examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention that render it patentable, being only examples of certain advantageous features and differences which Assignee's attorney chooses to mention at this time.

Reconsideration of the application and allowance of all of the claims are respectfully requested.

The Commissioner is hereby authorized to charge all fees and any additional fees that may be required or credit any overpayment to Bracewell & Patterson, L.L.P. Deposit Account No. 50-0259 (Order No. 25581.002). Should further discussion regarding the application be desired by the Examiner, a telephone conference is respectfully requested. Constance Rhebergen can be reached at (713) 221-3306 and Kimberly Brown can be reached at (713) 221-1189.

Date: 1/14/04

Respectfully submitted,



Constance G. Rhebergen, Reg. No. 41,267

Kimberly L. Brown, Reg. No. 48,698

BRACEWELL & PATTERSON, L.L.P.

P.O. Box 61389

Houston, Texas 77208-1389

Telephone: 713/223-2900

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ATTORNEYS FOR ASSIGNEE



CARGILL, INC
12201 TORRENCE AVE.
CHICAGO, ILLINOIS 60617
TEL: (773) 375-7353

EMERGENCY TELEPHONE - CHEMTREC 1-800-424-9300

Material Safety Data Sheet

SECTION 1: CHEMICAL PRODUCT IDENTIFICATION

PRODUCT NAME: AP-140

HAZARDOUS MATERIAL IDENTIFICATION
SYSTEM (HMIS) RATING:

| | |
|---------------|---|
| HEALTH: | 1 |
| FLAMMABILITY: | 1 |
| REACTIVITY: | 0 |

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

| INGREDIENTS | % WT. | CAS NO. |
|-----------------|-------|------------|
| Soya Fatty Acid | 100% | 68308-53-2 |

SECTION 3: HAZARDS IDENTIFICATION

OSHA PERMISSIBLE EXPOSURE LIMIT (PEL): Unknown

ACGIH THRESHOLD LIMIT VALUE (TLV): Unknown

EFFECTS OF OVEREXPOSURE:

EYES: Contact may cause mild eye irritation including stinging, watering, and redness.

SKIN: Contact may cause mild skin irritation including redness, burning, and drying and cracking of the skin. No harmful effects from skin absorption have been reported.

INHALATION (Breathing): Expected to have a low degree of toxicity by inhalation.

INGESTION (Swallowing): May cause nausea.

SIGNS AND SYMPTOMS: Effects of overexposure include irritation of the eyes, nose and throat, irritation of the digestive tract.

SECTION 4: FIRST AID MEASURES

EYE: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

SKIN: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

INHALATION (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

INGESTION (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious, place on the left side with the head down. If possible, do not leave victim unattended. Seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: >220 Degrees F

FLAMMABLE LIMITS (% BY VOLUME IN AIR AT 212 DEG. F):

LOWER EXPLOSION LIMIT: N/A **UPPER EXPLOSION LIMIT:** N/A

EXTINGUISHING MEDIA:

Use foam, carbon dioxide or chemical fire fighting apparatus.

SPECIAL FIRE FIGHTING PROCEDURES:

The use of self-contained breathing apparatus is recommended for fire fighters.

SECTION 6: ACCIDENTIAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate all non-essential personnel. Ventilate the area. Equip employees with appropriate personal protective equipment. Dike around spilled material. Cover spill with inert absorbent material and shovel with non-sparking tools into container. Remove containers to a safe area and seal.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Drums: Protect against physical damage.

Bulk: Storage should be in standard flammable liquid storage tanks.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION**VENTILATION:**

Mechanical ventilation

PROTECTIVE GLOVES:

Chemical resistant gloves.

EYE PROTECTION:

Safety goggles or glasses with side shields to guard against splashes.

OTHER PROTECTIVE EQUIPMENT:

Eye bath and safety shower. To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: N/A

SPECIFIC GRAVITY(0 54 DEG C): N/A

EVAPORATION RATE (n-Bu Ac=1): N/A

VAPOR DENSITY (AIR=1): < 1

VAPOR PRESSURE (mm Hg@68F): N/A

PH: N/A

APPEARANCE AND ODOR: Pale yellow liquid, mild odor

SOLUBILITY IN WATER: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not Occur

INCOMPATIBILITY(material to avoid): Strong Oxidizing Agents, Strong Bases, Reducing Agents

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition may yield carbon dioxide and/or carbon monoxide.

SECTION 11: TOXICOLOGICAL INFORMATION

None of the components in this mixture are listed by IARC, NTP or OSHA as a carcinogen.

SECTION 12: ECOLOGICAL INFORMATION

No definitive information available on environmental impact if product is released to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations.

If discarded, this product is not considered a hazardous waste under RCRA (40 CFR 261).

The conditions of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

SECTION 14: TRANSPORTATION INFORMATION

DOT CLASSIFICATION: NOT REGULATED BY THE DEPARTMENT OF TRANSPORTATION (DOT) AS A HAZARDOUS MATERIAL.

SECTION 15: REGULATORY INFORMATION

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components of this product are listed on the TSCA Inventory.

SARA TITLE III:

SEC. 302/304 REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE: (NONE)

SEC. 302 THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE: (NONE)

SEC. 311/312 HAZARD CATEGORIES: (UNKNOWN)

SEC. 313 AND 40 CFR 372: TOXIC CHEMICAL REPORTABLE INGREDIENTS: (NONE)

SECTION 16 : OTHER INFORMATION

The above information was obtained from sources which we believe are reliable. However, no representation, warranty or guarantee of any kind, expressed or implied, is made to its accuracy, reliability or completeness. Cargill, Incorporated expressly disclaims liability and shall not be held liable for any loss, damage or expense resulting from handling, storage, disposal or use of this product.

This MSDS replaces all previous versions for this product.

REVISION DATE:

DATE OF PREPARATION: 4/17/01

ENVIRONMENTAL MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED BY:
CARGILL, INCORPORATED
12201 TORRENCE AVE.
CHICAGO, ILL. 60617
INFORMATION CONTACT: 773-375-7353

EMERGENCY TRANSPORTATION CONTACT: CHEMTREC
1-800-424-9300
HEALTH EMERGENCY: CONTACT YOUR LOCAL POISON
INFORMATION CENTER

PRODUCT NAME: **FREE FATTY ACID (FFA)**
CARGILL PRODUCT CODE: FFA

HAZARDOUS MATERIAL IDENTIFICATION
SYSTEM (HMIS) RATING:

CARGILL PRODUCT CATEGORY: G1

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENT | % WT. | TLV | CAS NO. |
|--|--------|-----|------------|
| FFA C16-C18 | 70-85% | N/A | 67701-03-5 |
| Aliphatic hydrocarbon Mixture C14-C30 | 10-15% | N/A | 68514-35-2 |
| Other Impurities | 5-7% | N/A | 8001-22-7 |

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Yellow paste, only a faint odor

Liquid

THRESHOLD LIMIT VALUE (TLV): See SECTION 2: COMPOSITION/INFORMATION ON
INGREDIENTS

SECTION 3: HAZARDS IDENTIFICATION (CONTINUED)

EFFECTS OF OVEREXPOSURE:

EYES: Contact may cause mild eye irritation including stinging, watering, and redness.

SKIN: Contact may cause mild skin irritation including redness, burning, and drying and cracking of the skin. No harmful effects from skin absorption have been reported.

INHALATION (Breathing): Expected to have a low degree of toxicity by inhalation.

INGESTION (Swallowing): No harmful effects reported. ASPIRATION HAZARD- this material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

SIGNS AND SYMPTOMS: Effects of overexposure include irritation of the nose and throat, irritation of the digestive tract and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, and fatigue).

CANCER: No data available.

TARGET ORGANS: Inadequate data available for this material and its components.

DEVELOPMENTAL: Inadequate data available for this material and its components.

SECTION 4: FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES:

EYE: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

SKIN: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

INHALATION (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

INGESTION (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious, place on the left side with the head down. If possible, do not leave victim unattended. Seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: >210 DEG. C. CLEVELAND OPEN CUP METHOD

FLAMMABLE LIMITS (% BY VOLUME IN AIR AT 238 DEG. F):

LOWER EXPLOSION LIMIT: N/A UPPER EXPLOSION LIMIT: N/A

EXTINGUISHING MEDIA:

Use foam, carbon dioxide or chemical fire fighting apparatus.

SPECIAL FIRE FIGHTING PROCEDURES:

The use of self-contained breathing apparatus is recommended for fire fighters.

SECTION 6: ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate all non-essential personnel. Remove all sources of ignition. Ventilate the area. Equip employees with appropriate protection equipment. (See Section VIII). Dike around spilled material. Cover spill with inert absorbent material and shovel with non-sparking tools into container. Remove containers to a safe area and seal.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

---Drums: Protect against physical damage. Outside or detached storage preferred.

--- Bulk: Storage should be in standard flammable liquid storage tanks.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION:

Use self-contained breathing apparatus where vapor concentrations may be above TLV limits. Below the TLV limits, use a NIOSH-approved vapor respirator or an air line respirator with escape bottle provisions.

VENTILATION:

Local exhaust must be sufficient to keep airborne vapor concentrations below the TLV limit. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination.

PROTECTIVE GLOVES:

Chemical resistant gloves.

EYE PROTECTION:

Safety goggles or glasses with side shields to guard against splashes.

OTHER PROTECTIVE EQUIPMENT:

Eye bath and safety shower. To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: N/A
SPECIFIC GRAVITY(@ 54 DEG C): 0.87
EVAPORATION RATE (n-Bu Ac=1): N/A
VAPOR DENSITY (AIR=1): N/A
VAPOR PRESSURE (mm Hg@68F): <0.01 mm at 100 C.
PH: NOT RELEVANT
APPEARANCE AND ODOR: Yellow paste, only a faint odor
SOLUBILITY IN WATER: negligible, less than 5%

SECTION 10: STABILITY AND REACTIVITY

STABILITY:
Stable

INCOMPATIBILITY (material to avoid):
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition may yield carbon dioxide and/or carbonmonoxide.
Aldehydes (including acrolein) may be produced fromatmospheric oxidation
and/or thermal degradation under severe pressure.

HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

SECTION 12: ECOLOGICAL INFORMATION

No definitive information available on environmental impact if product is released to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Incinerate under safe conditions; dispose of in accordance with local, state and federal regulations.

We recommend that containers be either professionally reconditioned for reuse by certified firms or properly disposed of by certified firms to help reduce the possibility of an accident. Disposal of containers should be in accordance with applicable federal, state and local laws and regulations. "Empty" drums should not be given to individuals.

The conditions of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

SECTION 14: TRANSPORT INFORMATION

DOT CLASSIFICATION: NOT REGULATED BY THE DEPARTMENT OF TRANSPORTATION (DOT) AS A HAZARDOUS MATERIAL.

SECTION 15: REGULATORY INFORMATION

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components of this product are listed on the TSCA Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)/ DSL (DOMESTIC SUBSTANCE LIST): All components of this product are listed on the Canadian DSL.

CERCLA: The CERCLA Reportable Quantity for this Product is (NONE) pounds, which is based on the RQ of each ingredient and its percent in mixture.

SARA TITLE III:

SEC. 302/304 REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE:
(NONE)

SEC. 302 THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE:
(NONE)

SEC. 311/312 HAZARD CATEGORIES:
(NONE)

SEC. 313 AND 40 CFR 372: TOXIC CHEMICAL REPORTABLE INGREDIENTS
(NONE)

SECTION 16: OTHER INFORMATION

THIS MSDS HAS BEEN REVISED TO FOLLOW THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARD ANSI Z400.1-1993 FOR THE PREPARATION OF MATERIAL SAFETY DATA SHEETS FOR HAZARDOUS INDUSTRIAL CHEMICALS.

THIS MSDS REPLACES ALL PREVIOUS VERSIONS FOR THIS PRODUCT. PLEASE DISCARD ALL PREVIOUS VERSIONS AS THEY MAY CONTAIN CHANGED OR OBSOLETE INFORMATION.

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, REGARDING ITS ACCURACY OR COMPLETENESS.

DATE OF PREPARATION: 7/25/00

SUPERCEDES DATE: 6/17/99



ALL VEG 4000

ALL VEG 4000 is a carefully manufactured natural energy source scientifically derived from products of vegetable oil-seed processing. All VEG 4000 assures you, the customer, the highest energy source available for nutritional and industrial applications. All VEG 4000 can be relied upon to contain 4000-4050 kilocalories of metabolizable energy/pound.

PARAMETER PRODUCT SPECIFICATION AVERAGE GUARANTEE

| | |
|--|--|
| Total Fatty Acids..... | 92% 91% min. |
| Moisture | 2.0% 2.5% max. |
| Insoluble Impurities | 0.2% 0.5% max. |
| Unsaponifiable Matter | 3.5% 4.0% max. |
| Linoleic Fatty Acid | 54.0% 52.0% min. |
| Free Fatty Acids | 55.0% 65.0% max. |
| Saponification Value | 186 180 min. |
| Metabolizable Energy Calories (kilocalories / pound) | 4050 4000 |
| C.E.F. (via electron capture) | Negative |
| Chlorinated Pesticides Including PCB | Below FDA/EPA tolerance levels |
| Stability | < 5 Initial P.V., Under 20 meq @ 20 Hrs. |
| Preservative | Mixed Tocopherols, |



Vitamin E

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FROM : JIM LERE

PHONE NO. : 16055826424

Jan. 28 2002 10:59AM P2

MATERIAL SAFETY DATA SHEET**FEED ENERGY**

3121 Dean Avenue
Des Moines, IA 50317
(515) 263-0408

Real Science and Solutions...Always**Page Number : 1****SECTION I - Product and Company Identification**

| | |
|----------------------------|---|
| Product Name | All Vegetable 4000 |
| Manufacturer | FEED ENERGY COMPANY |
| Locations | Des Moines, Iowa 3121 Dean Avenue Des Moines, IA 50317 Pacific Junction, Iowa 20160 Kelting Ave. Pacific Junction, IA 51561 Sioux City, Iowa 1918 Jay Street Sioux City, IA 51106 |
| Emergency Phone No. | (515) 263-0408 |
| Chemical Name | Fatty Acids of Vegetable Oil |
| Composition | Vegetable oil, natural antioxidants, and pigments from oilseeds |

SECTION II - Hazardous Components

| | |
|---|---|
| Toxic and Hazardous Ingredients | None |
| Hazardous Decomposition Products | Carbon monoxide and carbon dioxide gases can be formed from burning |

SECTION III - Physical/Chemical Characteristics

| | |
|-----------------------|-------------------------|
| Physical State | Liquid at 21 °C (70 °F) |
| Appearance | Oily |
| Color | Dark Brown/Black |
| Odor | Mild fatty |
| Melting Point | 21 - 29 °C (70 - 85 °F) |

Continued on Next Page

FROM : JIM LERE

PHONE NO. : 16055826424

Jan. 28 2002 11:00AM P3

All Vegetable 4000**Page Number : 2**

| | |
|--|------------------------------|
| Boiling Point | Greater than 260 °C (500 °F) |
| Solubility in water | Negligible at 25 °C (77 °F) |
| Specific Gravity (H₂O=1) | 0.90 |
| pH | 5.0 – 6.0 |
| Volatile | Negligible |
| Evaporation Rate | Negligible |
| Vapor Pressure (mmHg at 20 °C) | Negligible |
| Vapor Density | Not Applicable |
| Viscosity (SSU at 100 °F) | 500 |

SECTION IV - Fire and Explosion Hazard Data

| | |
|---|---|
| Flash Point | 212 °C(414 °F) |
| Flammable Limits | No data available |
| Extinguishing Agents | Dry chemical, carbon dioxide, foam or sand/earth. Closed containers exposed to fire may be cooled with water. |
| Special Fire Fighting Procedures | Do not use heavy stream of water. Fatty material will float. |

SECTION V - Health Hazard Data

| | |
|---|--|
| Route (s) of entry | Inhalation <u> x </u> Skin <u> </u> Ingestion <u> x </u> |
| Permissible Concentrations (air) | Inert or Nuisance dust 15 mg/m ³ (total) 5 mg/m ³ (respirable fraction) Nuisance Particulates TWA 10 mg/m ³ |
| Health hazards (Acute and Chronic) | |
| - Chronic Effects on Overexposure | No data available |
| - Acute Toxicological Properties | No data available |

SECTION VI - First Aid Measures

| | |
|-------------------|---|
| Eyes | Immediately flush eyes with large amounts of water for at least 15 minutes and consult a physician |
| Skin | Wash skin thoroughly with soap and water. For contact with hot molten material, cool burned skin by immersing in cold water, or apply cold water |
| Inhalation | Remove to fresh air |
| Ingestion | Contact a physician immediately |

Continued on Next Page

FROM : JIM LERE

PHONE NO. : 16055826424

Jan. 28 2002 11:01AM P4

All Vegetable 4000**Page Number : 3****SECTION VII - Reactivity Data**

Stability Unstable _____
Stable x under normal conditions

Condition to avoid Incompatible with (keep away from) strong oxidizers, such as Hydrogen Peroxide, Bromine, and Chromic Acid

SECTION VIII - Spill and Disposal Procedures

Procedures for clean-up In case of spillage or leaks, use common absorbent, sweep up and dispose of in accordance with federal, state and local regulations.

Waste Disposal Method Dispose of in accordance with all applicable federal, state, and local regulations.

SECTION IX - Protective Equipment

Eye Protection Chemical Safety Glasses (for laboratory handling)

Skin Protection Protective clothing : Laboratory Coat]
Protective gloves : Neoprene type] for laboratory handling
Protective apron : Neoprene type]

Respiratory Protection Use NIOS/MSHA certified dust mask and/or respirator where appropriate (for prolonged exposure – 8 hours/day)

Ventilation Type Required Local, if necessary to control dust or fumes from hot material and to maintain the permissible exposure limit (PEL) or time weighted average (TWA) value.

SECTION X - Storage and Handling Precautions

Precaution to be taken in handling & storing As with any organic material, where dusty and/or misting conditions exist, an explosive atmosphere could develop. Do not mix it with fertilizer containing Ammonium Nitrates. Vegetable oil and rubber are incompatible.

Maximum Storage Temperature (to prolong shelf life) 93 °C (200 °F)

SECTION XI - Transportation Data and Additional Information

US DOT Information Not regulated

Continued on Next Page

FROM : JIM LERE

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Jan. 28 2002 11:02AM P5

All Vegetable 4000**Page Number : 4****Reportable Quantities**


Not applicable

Freight Classification

Fatty Acids of Vegetable Oils

Special Transportation NotesKeep above 26 °C (80 °F) to avoid setting up.
"INEDIBLE" must be written on the transportation vehicles.**Inedible Product**

Not for food use. For animal feeds, dust suppression and industrial emulsions.

| HMIS (USA) | NFPA |
|------------|--|
| | <p>Flammability</p> <p>Health  Reactivity</p> <p>Specific Hazard</p> |

Original Date : October 26th, 2001

Revision Date : ... 1/24/02

Approved by:



Robert G. Riley, Jr.
President

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